

UNION SWITCH & SIGNAL CO.

# Zachary C. Gillihan 2008

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## STYLE "S-8" ELECTRO-MECHANICAL INTERLOCKING MACHINE

### GENERAL INFORMATION AND ORDERING INSTRUCTIONS

A Style "S-8" Electro-Mechanical Machine consists of a standard S. & F. mechanical machine, above the locking bed of which, one or more electric lever units are supported and arranged as shown on Plate A-1000, the locking between the electric and the mechanical levers being accomplished in the S. & F. locking bed. Electric units are spaced 5" centers; therefore, the maximum number of units for any machine cannot exceed the total number of mechanical levers and spaces for the same machine. The supporting frames for electric units are furnished in 4 and 8 lever sections, the number of sections depending on the number and location of units required. Supporting frames may be located on the locking bed without reference to the S. & F. sections. Additional Electric sections may be added at either end of existing sections.

#### **Size of Locking Bed:**

The minimum width of locking bed furnished with a new Style "S-8" Machine is a 12-Way (24 bars), as this size allows the application of electric locks without interference with the connecting rods, and avoids the use of the special support extensions Fig. 4, Plate A-1015. Where Units are added to an existing S. & F. Machine, and it is desirable to use the existing locking bed, due to limited space, etc., the supporting frame may be applied to a 10-Way (20 bars), 8-Way (16 bars), 6-Way (12 bars) or a 4-Way (8 bars) bed. In the last mentioned case the connecting rod is attached to a crank arm mounted on the locking shaft outside of the back rail.

#### **Numbering:**

When only a small number of electric levers are used, compared with the total number of mechanical levers, the former may be designated by letters A, B, C, etc., or figures 01, 02, 03, etc., while

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the mechanical lever numbers remain the same as on any standard mechanical machine. When quite a number of Electric Levers are installed, they should be designated by even numbers 2, 4, 6, etc., and the mechanical levers by odd numbers 1, 3, 5, etc., as per following diagram:

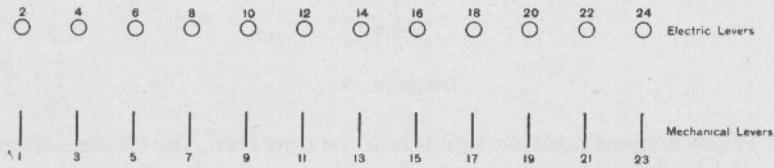


Diagram 1

When an Electric Lever is used as an Indicating Lever for a mechanically operated Switch (or Switches), or for Electric Detector Locking in conjunction with a mechanical F.P. Lock Lever (or Levers), the Electric Lever should be designated by the number of the mechanical lever over which it is located, the latter to have the letter "A" or "B" suffixed to its number, as per following typical diagrams:

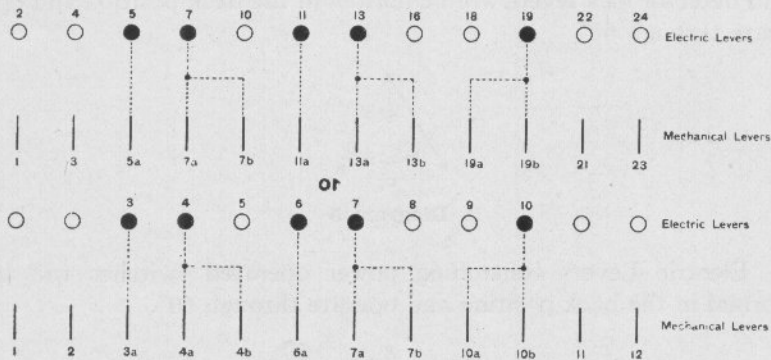


Diagram 2

### Normal Position of Levers:

Normal lever positions of electric units are the same as on power operated machines.

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Opposing signals are controlled by R and L positions of the levers, R being the front and L the back position. A  $30^\circ$  movement of the lever is provided for both R and L positions.



Diagram 3

When a three-position signal is to be operated, the electric lever may be in either the front or back position normally, depending on the direction of traffic, the lever moving  $40^\circ$  and  $60^\circ$  to operate the signal to  $45^\circ$  and  $90^\circ$  positions respectively.

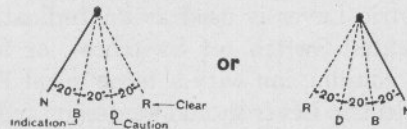


Diagram 4

Electric Indication Levers for mechanically operated switches, and detector lock levers will be normal in the back position and operate through  $60^\circ$ .

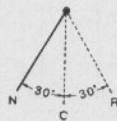


Diagram 5

Electric Levers controlling power operated switches will be normal in the back position and operate through  $60^\circ$ .



Diagram 6



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Traffic Levers may normally be either front or back depending on direction of traffic, and will operate through  $60^\circ$ .

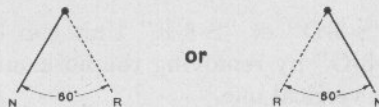


Diagram 7

### Types of Units:

Electric Units will be furnished as follows:

- "S-8-A" (Master Unit) 1 magnet, no roller, Ref. A, Plate A-1005.
- "S-8-B" 1 magnet,  $1\frac{3}{4}$ " Horizontal Roller, 12 contacts, Ref. B, Plate A-1005.
- "S-8-C" 1, 2 or 3 magnets,  $1\frac{3}{4}$ " Horizontal Roller, 12 contacts, Ref. C, Plate A-1005.
- "S-8-D" 1, 2 or 3 magnets,  $1\frac{1}{4}$ " Horizontal Roller, 12 contacts, Ref. D, Plate A-1005.
- "S-8-E" 2 or 3 magnets,  $1\frac{1}{4}$ " Horizontal Roller, 12 contacts, (including quick switch) Ref. E, Plate A-1005.
- "S-8-F" 1, 2 or 3 magnets,  $1\frac{1}{4}$ " Vertical Roller, 24 contacts, Ref. F, Plate A-1005.
- "S-8-G" 2 or 3 magnets,  $1\frac{1}{4}$ " Vertical Roller, 24 contacts, (including quick switch), Ref. G, Plate A-1005.
- "S-8-H" Extension for F or G, 16 contacts, Ref. H, Plate A-1005.

Each of the above may be furnished with a Latch Circuit Controller with one normally open contact and a "stick" or "non-stick" Push Button with a maximum of two normally open and two normally closed contacts. A Mercury Release may be furnished on Units "S-8, C, D, or F" when not more than two magnets are required. In special cases it will be possible to equip Unit "S-8-A" with a Mercury Release also "S-8-E or G" when not more than two magnets are required. A quick switch is furnished on Units "S-8-E and G" only. 1, 2 or 3 Indicator Lights may be furnished for each unit.

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eliminate mechanical bars. The locking between the electric lever and mechanical lever is obtained by attaching a locking cam and lock bar connection as described in preceding paragraph, thus providing a lock which compels the reversing of the F.P.L. lever before the electric detector lever can be reversed. This application to an existing machine may not require a change of locking in the bed of the machine as the electric lever will be connected to the shaft formerly operated by the F.P. lock lever. Two (2) or more F.P. lock levers may be locked by one (1) electric detector lever by equipping the locking shaft of each additional lever with a locking cam supported by, but operated independently of the locking shaft, the locking cams being joined together by a connecting link.

The connecting rods from electric levers extend through the locking brackets between bars 10 and 11 for "S-8-B" and between 10 and 11 or 22 and 23 for Units "S-8-A," "S-8-C," "S-8-D," "S-8-E," "S-8-F" and "S-8-G."

### **Driver:**

The loose sleeve driving pieces are made in various lengths in order that a selection of locking bars may be obtained. The bars which may be operated are shown by diagrams on Plates A-1045-1 and A-1045-2.

### **Model 12 Electric Locks, Forced Drop Electric Locks, Union Electric Locks and Mechanical Time Locks:**

When complete new Style "S-8" Machines are furnished they are equipped with 12-Way Brackets (24 bars) so that if desired, either Union or Model 12 Electric Locks may be applied without interference with the connecting rods of Units. When a Union Electric Lock is to be operated by a locking shaft which is also connected to an "S-8" Unit, the connecting rod of the Unit can only be located between bars 10 and 11. When a Model 12 Electric Lock is to be operated by a locking shaft which is also connected to an "S-8" Unit, the connecting rod of the Unit can only be located between bars 22 and 23.

For general information regarding the application of Model 12 Electric Locks, Union Electric Locks, Forced Drop Electric Locks and Mechanical Time Locks to Style "S-8" Machines see Plate A-1070.

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If a hasp and staple for padlock, or a cylinder lock with different diameter of barrel is desired, this should be so stated.

### **For Style "S-8" Units Added to Existing Machines:**

11. When ordering Style "S-8" Units and supporting frames for application to an existing S. & F. Machine, or Style "S-8" Units for application to an existing Style "S-8" Machine, the following information should be furnished in addition to that listed in paragraphs 1 to 10 above.

12. The numbered Track Plan referred to in (1) above should show all changes and additions occasioned by the installation or addition of the Electric Units. If a revised track plan is not available, the order should specify the number and kind of units required, as well as their location on the machine.

13. A print of the existing Locking and Dog Sheet, showing the locking now in the machine, or, if this is not available, the number of locking bars in the locking bed should be specified on the order.

14. The order should state whether the change of locking is to be provided for by the Railroad Company or by the Signal Company. If the former a print of the revised Locking Dog and Sheet should accompany the order, or the order should designate the number of the locking bar to be driven by each unit.